

AGGREGATES EXPLOITATION IN MATI RIVER, A HUMAN PRESSURE WITH CONSEQUENCES ON THE BED'S MORPHOLOGY, ASSESSMENT OF CHANGES.

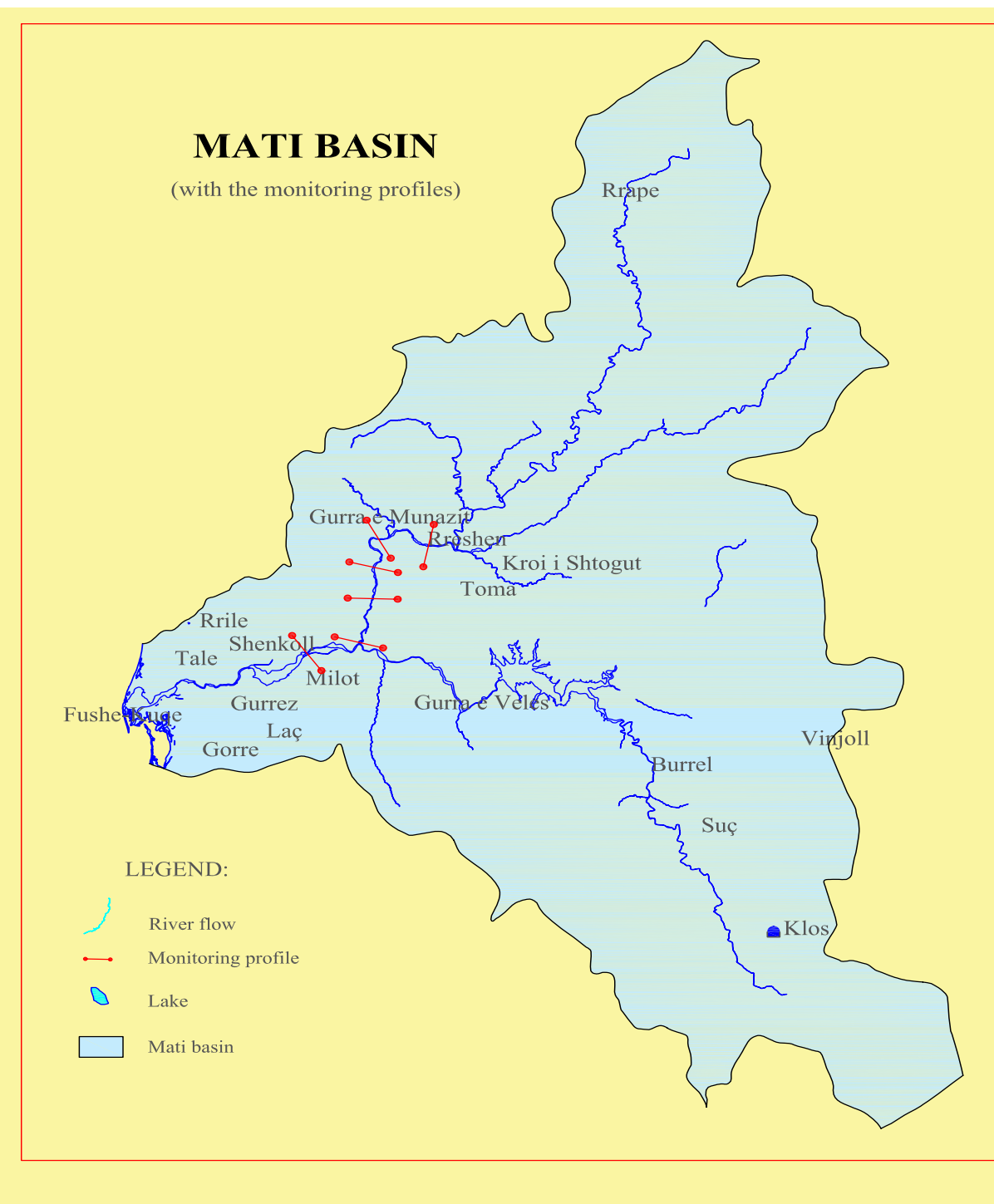
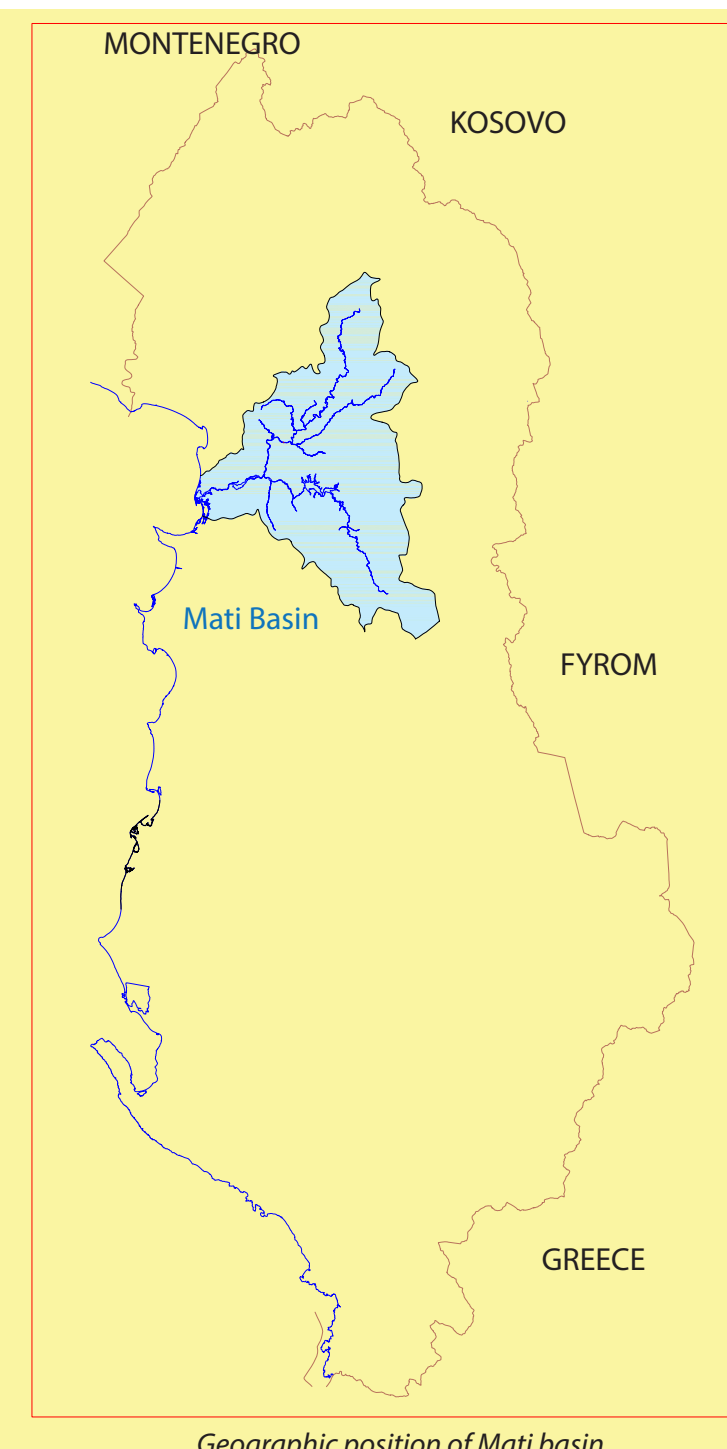


Adrian Dhimitri¹, Raimonda Londo¹, Vladimir Kola¹

¹Geological Survey of Albania, Department of Hydrogeology, dhimitriadrian@yahoo.com

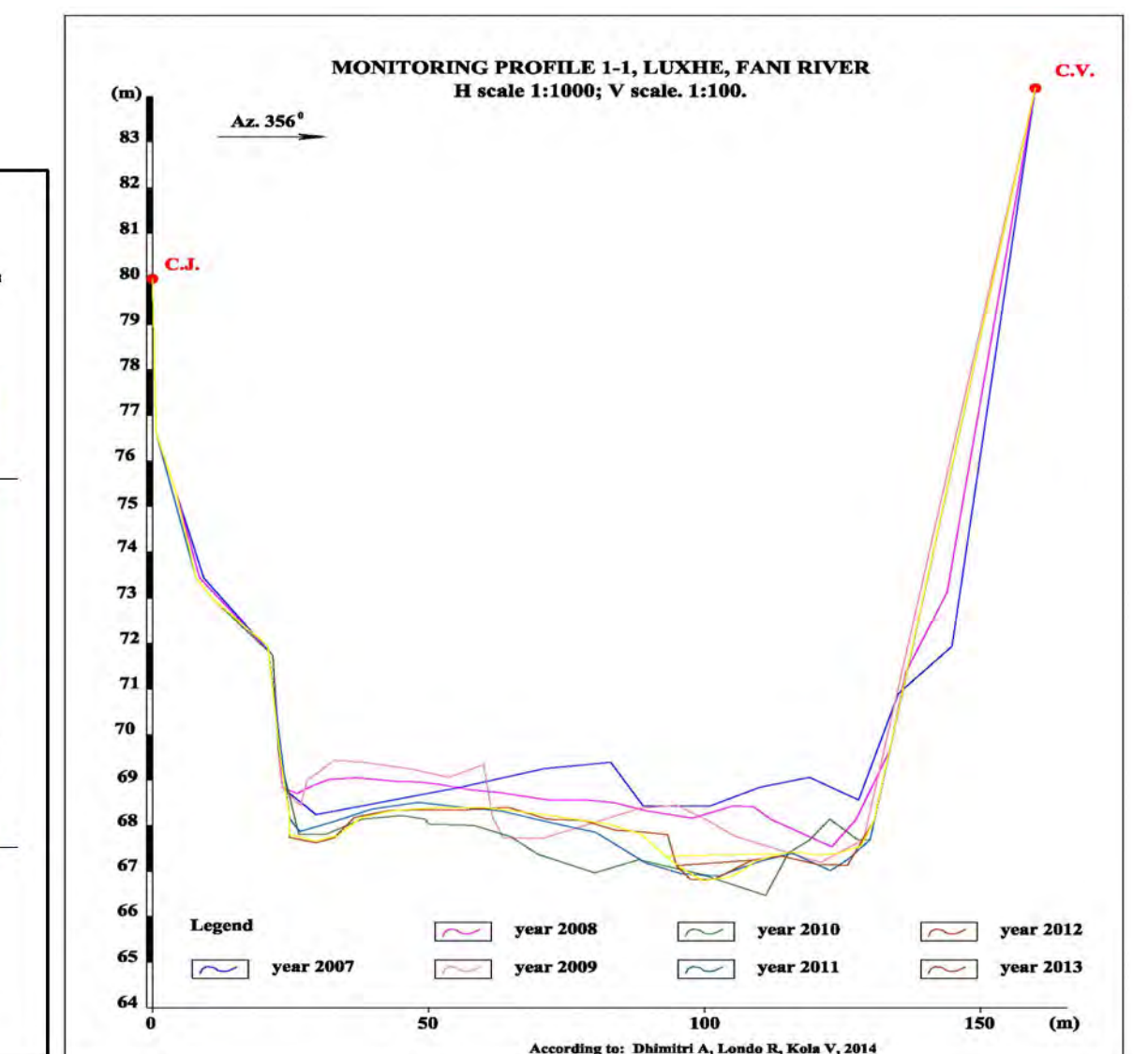
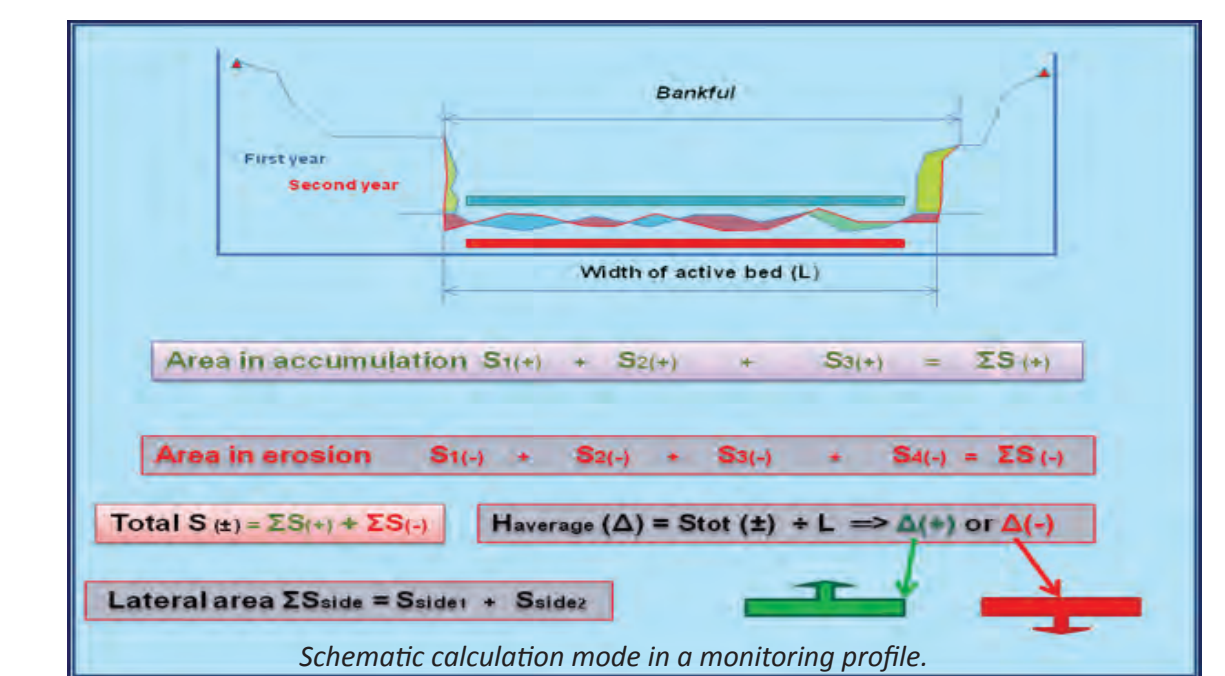
INTRODUCTION

In the recent 20 years, we have an aggravated situation in Mati riverbed due to the uncontrolled exploitation of aggregates for construction needs. The information needed for the assessment of changes is taken through periodic measurements by surveying methods. Based on the annual comparative measurements, we obtained charts that reflect recent variations of riverbed in places where the monitoring profiles are fixed. Removal of large amounts of sand and gravel from the riverbed has activated the cutting back erosion, consequently, the increase energy during peak water flows make possible the extend of erosion in the horizontal direction towards the river banks. The geological or neotectonic factors have their impact on the riverbed variations in the long term monitoring. The results of monitoring of the vertical evolution of the riverbed, will be used to construct the model of prediction and as a sure base for the decision making of the riverbed treatment aiming to improve the situation.



METHODOLOGY

To evaluate the erosive or cumulative variations of the riverbed, we have evaluated all the lines corresponding to the annual periodic measurements. The differences on the profile configuration, from successive measurement to the initial one, determines the sedimentation and/or erosion areas across the profile on riverbed. The differences between the accumulation surfaces (+) and erosion (-) gives the trend of the profile.

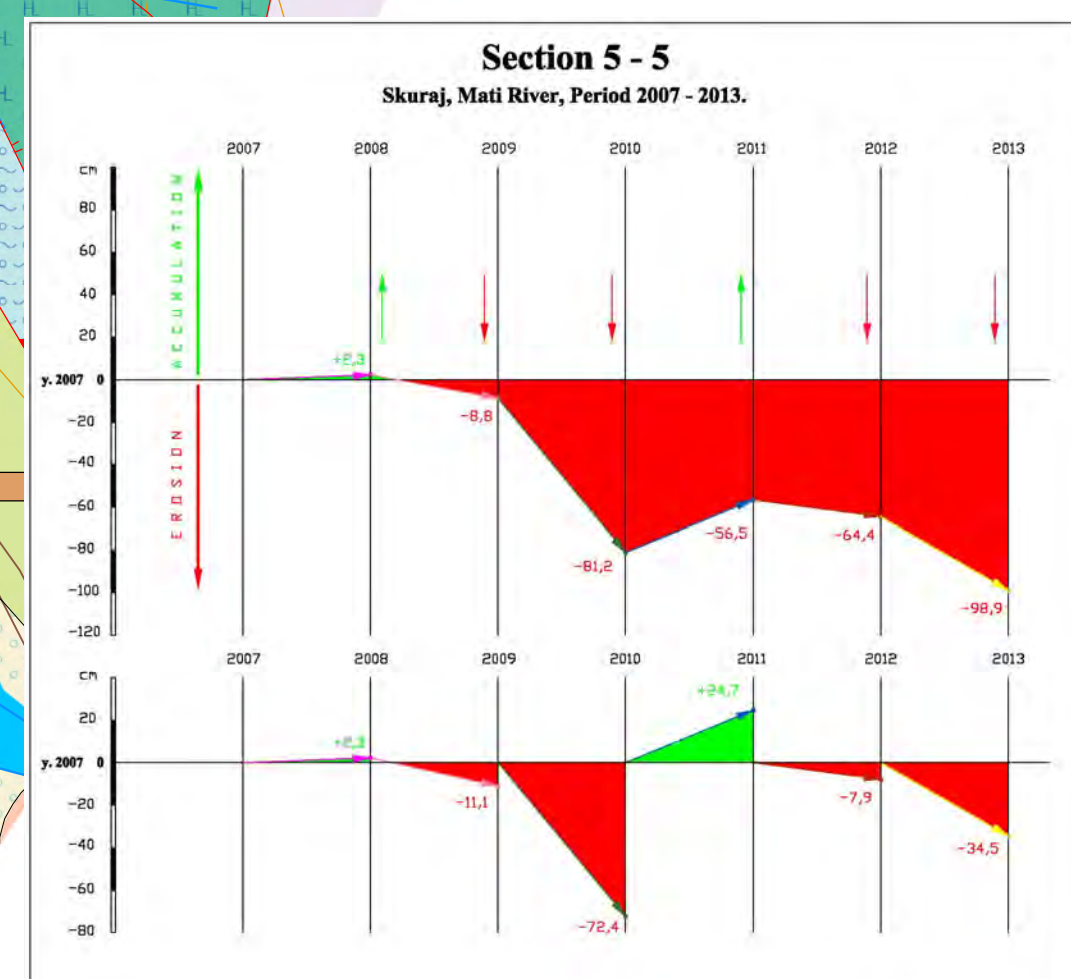
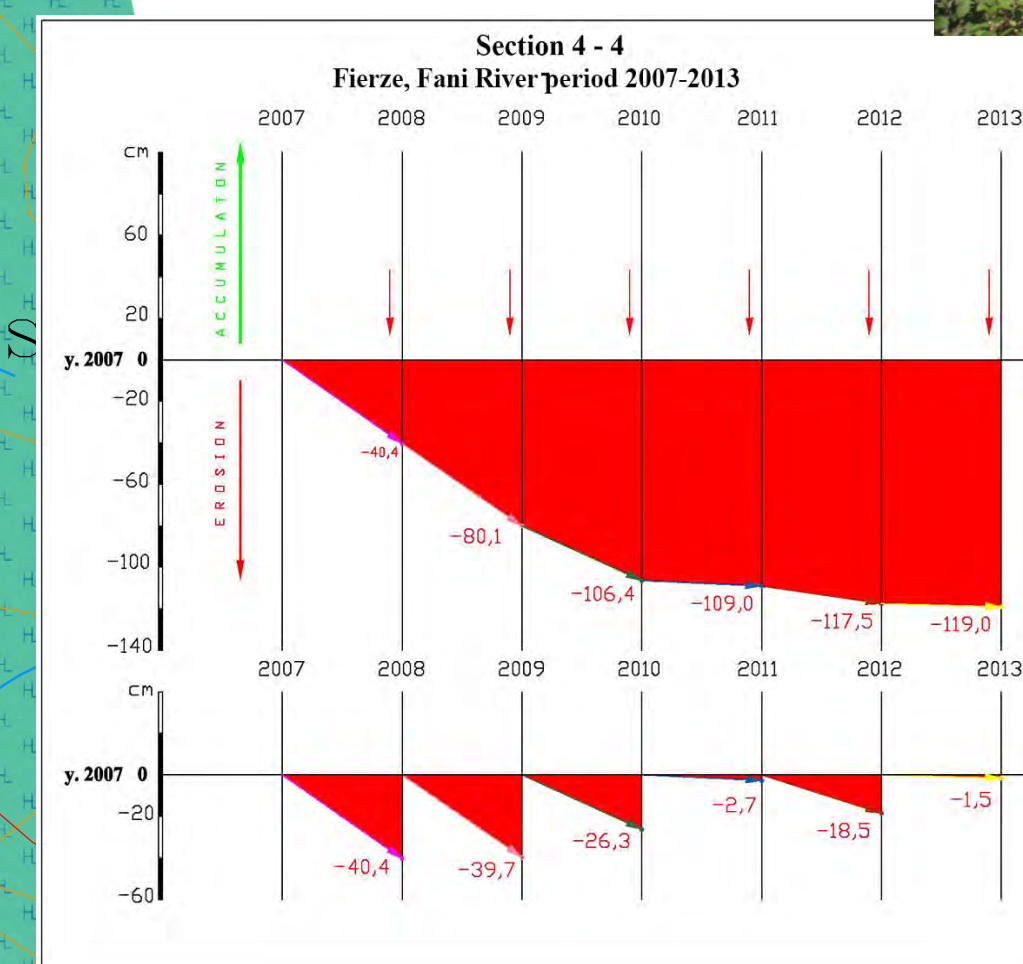
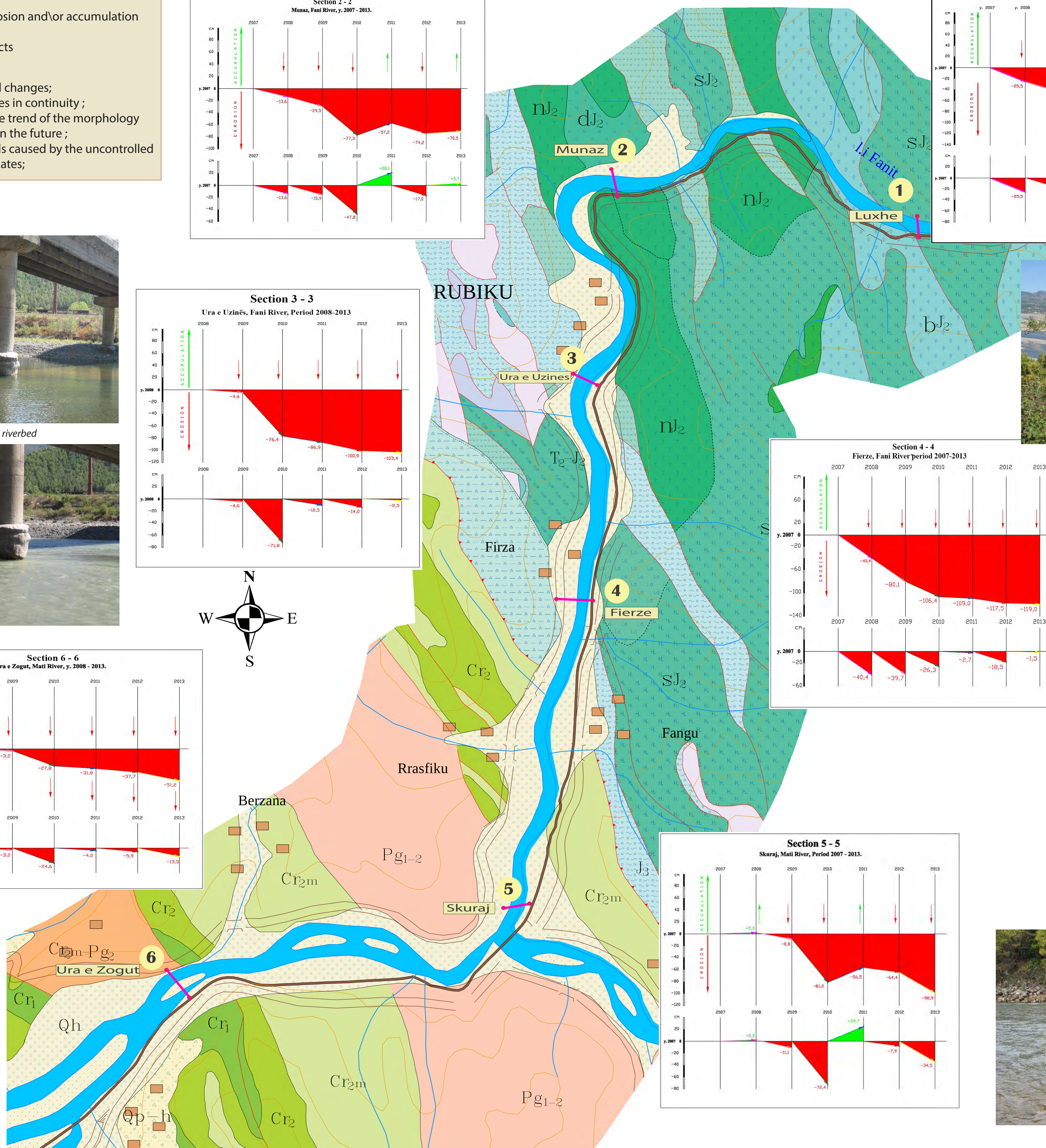
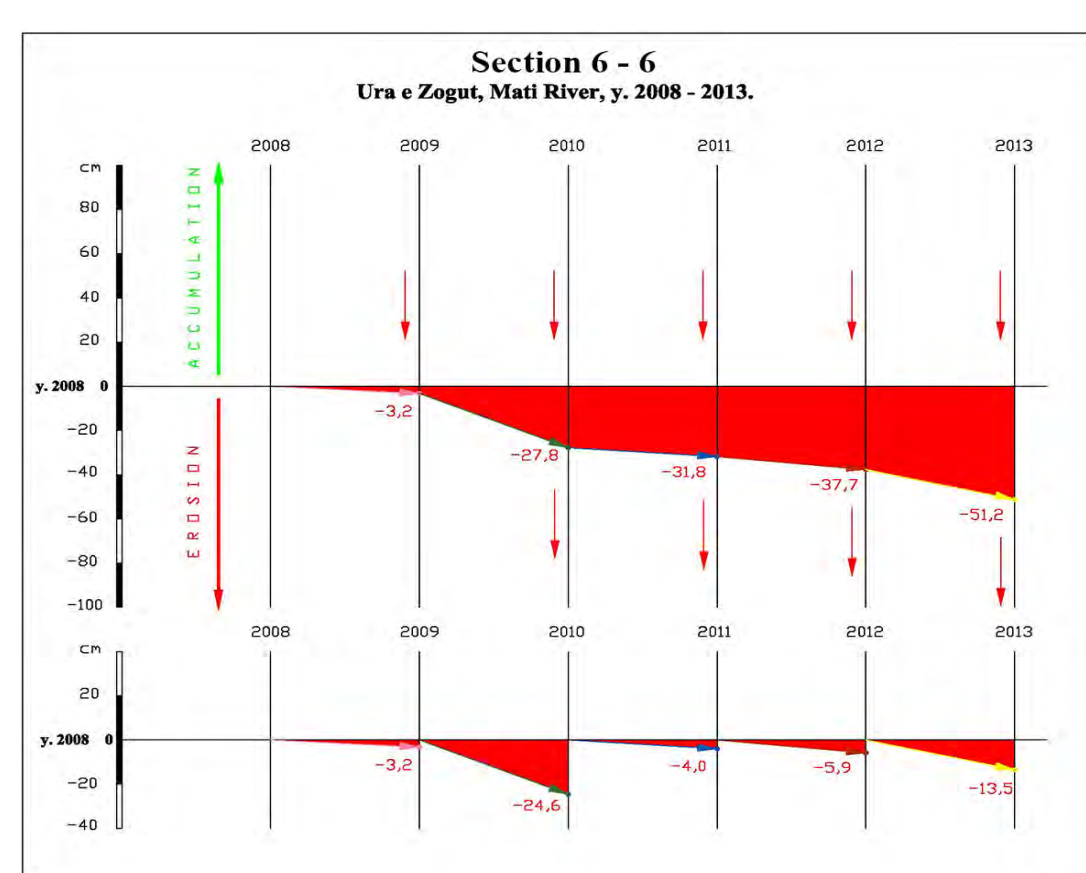
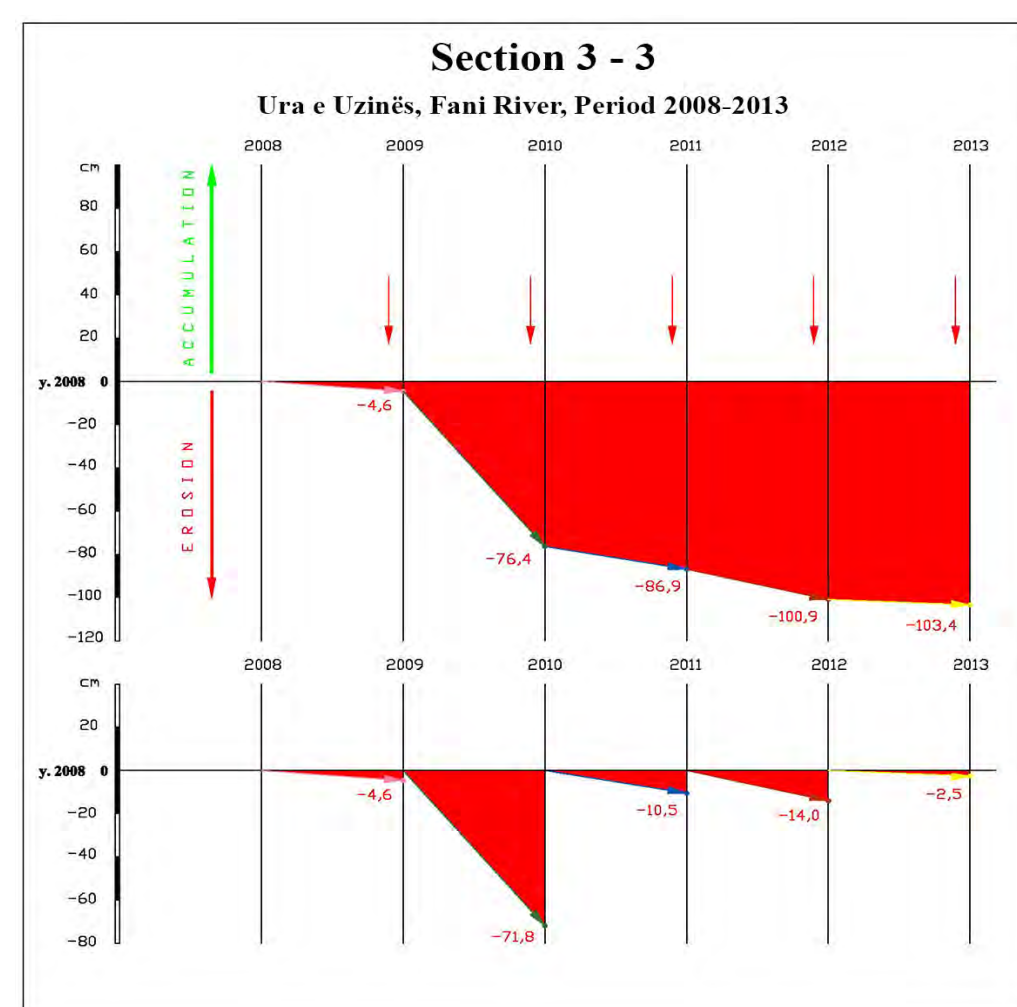
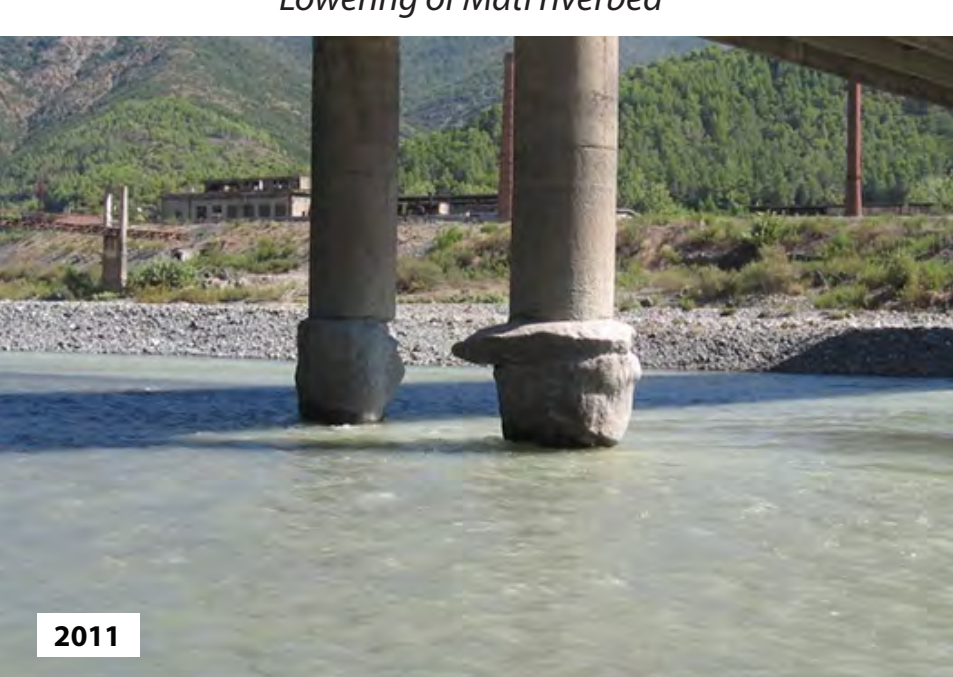


OBJECTIVES

- # The evaluation of the erosion and/or accumulation process
- # Localization of the impacts

MAIN POINTS

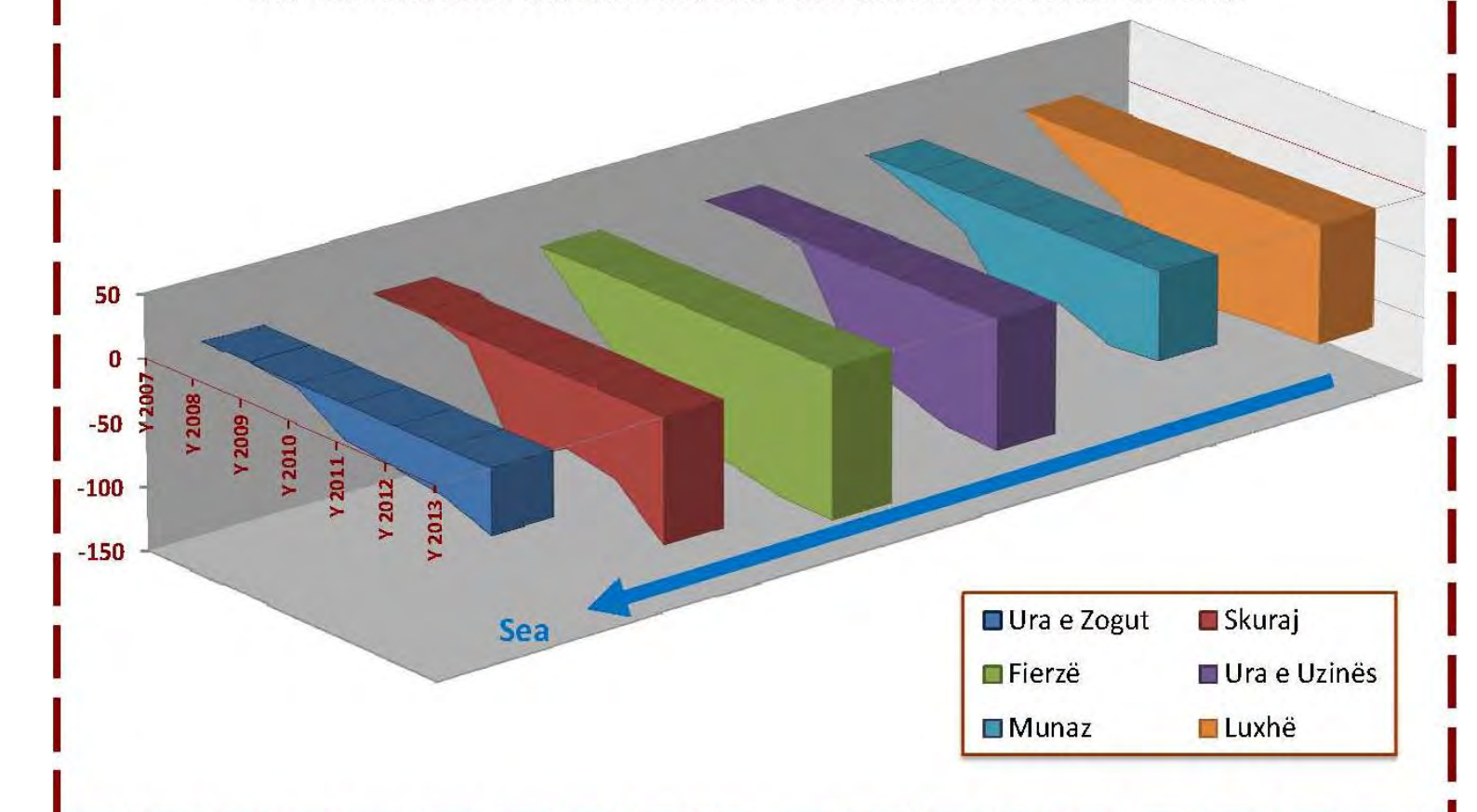
- # The evaluation of annual changes;
- # The evaluation of changes in continuity;
- # Better understanding the trend of the morphology evolution of the riverbed in the future;
- # The evaluation of hazards caused by the uncontrolled exploitation of the aggregates;



FACTS

- The companies that operate on Mati riverbed 22
- Annual supply of sand and gravel 80,000 m³/year
- The amount of exploitation of sand and gravel 450,000 – 500,000 m³/year
- The time of recovery of the exploited aggregates 5,6 – 6,2 years

DYNAMIC CHANGES OF THE PROFILES IN MATI RIVER



Views from Zogu Bridge section



Irrigation Infrastructure on Mati river out of work

IMPACTS



IMPACTS ... IMPACTS ... IMPACTS ... IMPACTS ...

- Riverbed lowering due to the vertical erosion;
- Soil erosion;
- Decrease of the underground water level of Fushe Kuqe basin;
- Endangering of civil and/or industrial engineering constructions;
- Unavailable irrigation system;
- Loss of biodiversity;
- Floodings;
- Landslide in the river banks;
- Aesthetic pollution;
- Degradation of the flow channel structure;
- Negative impact on the coast line;